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*Published to advance the Science of cold-blooded vertebrates*

## AN ABNORMAL WINTER FLOUNDER AND OTHERS.

In early February, 1916, the American Museum of Natural History received from Messrs. L. & F. Nagele, retail fish dealers, a remarkable specimen of winter flounder (*Pseudopleuronectes americanus*) from the New York market. The depth of its body is contained 1.6 times in length to the base of the caudal fin, instead of 2.4 times as is normal for the winter flounder. Other differences are a concave profile and an arch at the front of the lateral line. I believe the specimen a hybrid between *Pseudopleuronectes* and *Limanda ferruginea* which is almost equally common near New York in deeper water off shore. The great depth of body, however, is as foreign to one as to the other of these species.

Both *Pseudopleuronectes* and *Limanda* belong to the specialized group of flounders with ventral fins nearly or quite symmetrical and small twisted mouths (*Pleuronectinae*), a group in which so deep a body is very rare; whereas the adjoining specialized group with symmetrical mouths and asymmetrical ventrals (*Psettinae*) contains many such deep-bodied forms as the Turbot, Sundial, etc. Also the Craig-Fluke (*Glyptocephalus*), a terminal member of the *Pleuronectinae*, is decidedly elongate. There is then evidence that loss of depth has been to some extent cor-

related with specialization (it becomes degeneration in the terminal flatfishes) in the *Pleuronectinae* though not in the *Psettinae*, and plausibility is given to the abnormal depth of the specimen under consideration being a reversion to a character possessed by some common ancestor of both *Pseudopleuronectes* and *Limanda*.

In 1828 Cuvier described as *Pleuronectes latus* from the coast of France a similar deep flounder which Günther (1862) thought might be simply an abnormal Plaice (*Pleuronectes platessa*) and which Jordan and Goss (1889) unreservedly considered as such. The Plaice is a common European flat-fish corresponding in many ways to our winter flounder, and our specimen is probably a homolog of Cuvier's.

Speaking of *Pseudopleuronectes americanus* in "American Fishes" Goode says: "There is very little evidence of a tendency to move to and from the shore with a change of season." We know that *Limanda ferruginea* more or less replaces it in deeper water off our coast. It may be interesting to note that I have seen one or two taken with numerous *Limanda* in 21 fathoms south-east of New York Bay, November 21, 1912, and these two species taken together in 18 fathoms south of Southampton, Long Island, November 23.

About August 1, 1917, there was an unusually heavy mortality of *Pseudopleuronectes americanus* in Moriches Bay, Long Island, N. Y. This is a broad almost tideless bay, but much of it is very shallow (extensive flats having but a few inches of water) and it is decidedly brackish. The channels coming in from the west through the narrows which separate this from Great South Bay, are salt enough, but some of the landward spring-fed "creeks" are pure fresh water, and the water on the sea-ward side, under the beach, which separates bay from ocean, is surprisingly fresh. This condition is probably due to the fact that the opening of these waters to the ocean is

twenty-five miles west at the farther end of Great South Bay, namely Fire Island Inlet.

*Pseudopleuronectes* is one of the few marine fishes found in the bay in numbers. An exceptional number of dead of this species were noticed on July 28, and on August 4 it was estimated that a thousand dead were seen. They averaged about 8 or 9 inches in total length. This high mortality was probably correlated with a period of unusually hot weather which that section had just experienced. It also should be born in mind that this is a northern fish, which, though it extends to Chesapeake Bay, is less numerous, especially in summer, south of New York. Similarly, I have seen large numbers of winter-killed *Cyprinodon variegatus* on Long Island, a fish whose range is southern and extends northward only to Cape Cod.

Unfortunately no data is accessible as regards the temperatures which accompanied the mortality of flounders, except my recollection that the locality was, more than it is usually, affected by the heat-waves than present. Data for July and August, 1917, at New York City kindly furnished me by the local office of the United States Weather Bureau gives an idea of the date and severity of these heat-waves. The mean daily temperature was above 75° on July 2 (77); again on July 16 to 17 (76, 78); on July 20 to 27 (76, 76, 76, 78, 78, 77, 78, 82); July 30 to August 2 (85, 89, 89, 84); August 7 (78); August 9 (78); August 13 (76); August 15 (76); August 17 (77); August 20 to 21 (76, 76); August 24 (76); August 29 (76).

J. T. NICHOLS,  
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### **CHAETODON OCELLATUS ON THE LONG ISLAND SHORE.**

On the forenoon of October 12, 1917, while Mr. J. T. Nichols and I were at Long Beach, Long Is-